1. Specifications Score Card

For clarification on individual regulations, refer to the NSIDC Technical Regulations

Team Name:	
School Name:	
Designed Using (CAD):	
Manufactured Using (CNC)	

Reg	Regulation Overview	Min/Max Quick Guide	Penalty per Car	Pass or Fail		Remarks
				Car A	Car B	
ARTICLE T3 – FULLY ASSEMBLED CAR						
T3.1.1	**Designed and engineered using CAD / CAM**		**NA**			
T3.1.2	**Body manufactured using CNC only**	**Check unfinished body**	**NA**			
T3.1.3	**Race cars identical geometry**	**Visual check**	**NA**			
T3.2.1	**Safe Construction – Specification judging**	**Check T3.2.1**	**-5**			
T3.3	**Undefined features**	**Check T1.1**	**-6**			
T3.4	**Total length**	**Min:170 Max:210**	**-6**			
T3.5	**Total width**	**Max: 85**	**-6**			
T3.6	**Total height (CO_2)**	**Max: 65**	**-6**			
T3.7	**Total weight**	**Min: 50.0g**	**-6**			
T3.8	Track clearance (CO_2)	**Min: 1.5**	-6			
T3.9	Status during racing	**Nothing removed**	-6			
ARTICLE T4 – BODY						
T4.1	**Body construction**	**Balsa Blank only**	**-6**			
T4.2	**Virtual cargo – See T4.2 for dimensions**	**Between axles**	**-6**			
T4.3	Virtual cargo identification	**Check Eng. drawing**	-3			
T4.4	**Body thickness**	**No part is less than 3mm thick**	**-6**			
T4.5	F1 in Schools logo decal location	**T1.12**	-6			
ARTICLE T5 – CO_2 CARTRIDGE CHAMBER						
T5.1	Diameter	**Min: 17.8 Max: 19.5**	-3			
T5.2	**Distance from track surface (CO_2)**	**Min: 30 Max: 40**	**-6**			
T5.3	**Depth**	**Min: 45 Max: 58**	**-6**			
T5.4	**Max angle of chamber (CO_2)**	**Min: -3° Max: 3°**	**-6**			
T5.5	Chamber safety zone (CO_2)	**Min: 3**	-3			
T5.6	**CO_2 cartridge visibility (CO_2)**	**Min: 5mm top view**	**-6**			
ARTICLE T7 – TETHER LINE GUIDES						
T7.1	**Location**	**2 line guides firmly secured**	**-6**			
T7.2	Guide separation – inside edges	**Min: 120**	-2			
T7.3	Internal diameter	**Min: 3.5 Max: 6**	-2			
T7.4	**Tether line guide safety**	**200g test, safe to race**	**-3**			
			Assessed by: (Initials)			
			Checked by: (Initials)			

1. Specifications Score Card	Team Name:	
	School Name:	
For clarification on individual regulations, refer to the NSIDC Technical Regulations	Designed Using (CAD):	
	Manufactured Using (CNC)	

Reg	Regulation Overview	Min/Max Quick Guide	Penalty per Car	Pass or Fail		Remarks
				Car A	Car B	
ARTICLE T8 – WHEELS						
T8.1	**Number and location**	**4, 2 x 2**	**-6**			
T8.2	**Distance between opposing wheels**	**Min: 30**	**-6**			
T8.3	**Diameter**	**Min: 26 Max: 34**	**-6**			
T8.4	**Width**	**Min: 15 Max 19 exc. chamfer/fillet**	**-6**			
T8.5.1	**Visibility of wheels**	**Top & Side views**	**-6**			
T8.6	Race track contact (CO_2)	**All 4 in contact**	-2			
T8.7	Rolling surface	**Consistent, no tread**	-3			
T8.8	Wheel support systems	**Cylindrical volume**	-6			
T8.9	**Rotation**	**Abs. Min rolling incline: 2°**	**-6**			
ARTICLE T10 – WINGS AND WING SUPPORT STRUCTURE						
T10.1	**Description and placement**	**F & R & height**	**-6**			
T10.2	Construction and Rigidity	**Span constant during racing + rigid**	-6			
T10.3	Clear airflow	**3 mm clear 'air' space**	-6			
T10.4	**Rear wing location**	**Behind CL of rear wheel**	**-6**			
T10.5	**Rear wing height (CO_2)**	**Min: 34**	**-6**			
T10.6	**Front wing location**	**In front of CL of front wheel**	**-6**			
T10.7	Visibility of front wing	**Visible from front**	-3			
T10.8	Wing identification	**Check Eng drawing**	-6			
T10.9.1	Front wing span	**Min: 40**	-3			
T10.9.2	Rear wing span	**Min: 40**	-3			
T10.10	Span segment	**Min: 20**	-3			
T10.11.1	Front wing chord	**Min: 15 Max: 25**	-2			
T10.11.2	Rear wing chord	**Min: 15 Max: 25**	-2			
T10.12.1	Front wing thickness	**Min: 1.5 Max: 6**	-1			
T10.12.2	Rear wing thickness	**Min: 1.5 Max: 6**	-1			
			Assessed by: (Initials)			
			Checked by: (Initials)			

2. Scrutineering Judging Score Card	Team Name:	
	School Name:	

SCRUTINEERING				
Engineering Drawings	Little or no detail, Little or no annotation	Third angle orthographic projection. Excessive or insufficient detail	Third angle orthographic projection and unrendered isometric view or similar. Parts list / bill of materials. Additional views to show sufficient detail. Regulation compliance shown	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Rendering	Poor quality	Different views, some inconsistencies with final car.	Different Views. Perfect match to final car including branding. Environment and lighting High end render technique	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Quality of Finish and Assembly	Reasonable finish with some inconsistencies	Good overall finish quality and assembly with attention to details	'Showcase' finish quality on all components. Exceptional attention to detail across all assembly and finishing. Two cars are identical.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
			Scrutineering Total =	**/60**

Notes:

3. Design & Engineering Score Card	Team Name:	
	School Name:	

Design & Engineering Portfolio				
Design Concepts	Single or basic concepts	Multiple concepts with links to research.	Several technically inspired ideas for different car components	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
3D Modelling	Basic application. Only final design 3D modelled	Appropriate 3D modelling in development stages. Dimensional constraints of F1 balsa block considered	Advanced use of 3D modelling techniques through. Highly detailed modelling. Designed for manufacture considerations (i.e. fillets)	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Application of Computer Aided Analysis	No or minimal analysis shown	Appropriate analysis shown. Results applied to development	Advanced and relevant. Virtual analysis integrated throughout design development.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Use of CAM/CNC	No or minimal evidence of CAM/CNC understanding	Effective use and understanding of CAM/CNC processes used	Evidence of excellent understanding of CAM/CNC technologies. Appropriate techniques and processes used to achieve manufacturing goals	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Other Manufacturing & Assembly	No or minimal manufacturing presented. Outsourcing with minimal understanding or justification.	Manufacturing process and stages described. Appropriate use of manufacturing resources documented (i.e. tools, finishes, jigs, fixtures)	Details all manufacturing stages and processes. Quality assurance and workplace safety considerations evident. Appropriate outsourcing justified.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Research & Development	No or limited evidence of R&D	Some scientific & mathematical theories and principles considered. Logical research based design developments explained.	Relevant R&D throughout the entire product design & development cycle. Design concept developments justified from research & test findings	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Testing	No or little evidence of testing	Limited testing. Some evidence of method and outcomes.	Purposeful testing with method and outcomes documented. Evidence of virtual and physical testing on the fully assembled car and individual components.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Design Process Evaluation	No or limited design process evaluation	Ideas or process evaluations at different stages	Excellent ongoing idea evaluations linked to improvement actions	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Quality & Clarity	Difficult to follow with basic presentation standard.	Clear structure, well organised.	High impact and professional throughout. Consistent and clear organisation.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
			Design & Engineering Total =	**/180**

Notes:

4. Enterprise Score Card	Team Name:	
	School Name:	

ENTERPRISE				
Project Management	No or very limited project management	Simple management and planning used to guide progress. A range of project resources identified. Basic team budget	Comprehensive project management. A range of factors considered; e.g. scope, time, resources and project risks. Plan changes discussed. comprehensive financial management.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Team Work	Limited team work evident	Evidence of effective team work with roles defined	Highly structured team with clear roles. All team members had effective and critical contributions. Role interactions recognised	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Marketing & Sponsorship Strategy	Limited explanation of planning, activity, goals and understanding.	Some evidence of process and approach for marketing, some development of sponsorship plans explained	Clear, well thought through documentation of planning and delivery of marketing and sponsorship programme including ROI (return on investment)	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
F1 in Schools Project Evaluation	No or limited project evaluation	Good evaluation of some project areas e.g. team work	Excellent ongoing project enterprise evaluation linked to improvement actions.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Quality & Clarity	Difficult to follow with basic presentation standard.	Clear structure, well organised.	High impact and professional throughout. Consistent and clear organisation.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Overall Team Identity	Inconsistent, limited or obscure identity	Effective team identity consistent through various project components e.g. car matches team uniform	Excellent and highly effective team identity. Team 'brand' consistently applied through all project elements.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
			Enterprise Total =	**/120**
PIT DISPLAY				
Pit Display Design Process	Limited evidence of design process	Some ideas & justification of design. Some consideration of constraints e.g. freight packing	A range of ideas, clearly justified creative final design. Evidence of development considering factors e.g. team identity, budget, sustainability and time constraints.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Pit Display Content	Repetition of Portfolio contents. Disorganised layout.	Clear and effective presentation and messaging. Multimedia used to enhance display	Clean, well-organised with high impact. Highly professional with attention to detail. Excellent integration of technology and multimedia	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Pit Display Build Assessment	**Please see Pit Display Build Assessment Score Card**			
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
			Pit Display Total =	**/60**
			Enterprise Total =	**/180**

Notes:

4.1 Pit Display Build Assessment Score Card	Team Name:	
	School Name:	

Pit Display Build Assessment. **All teams will start with a full allocation of 20 points. Points may be deducted as per the criteria below**				
Heading	Penalty	Assesssment Details	Notes	Points
Set-up Time C 6.6.3	-5 points per 5 minutes over time rounded up to the nearest 5 minutes*	A time period will be scheduled for when all teams will set-up their pit displays. A time limit of two hours will be enforced; this will be confirmed in supplementary regulations. F1 in Schools reserves the right to apply a penalty of up to 20 points at the discretion of the Chair of Judges for teams that do not complete their set-up within the time limit, do not leave their stand in a safe state and clear their pit and surrounding area of all rubbish.		
Pit Display Size C 6.6.4	-5	No part of the teams completed Pit Display is allowed to protrude beyond the physical dimensions of their allocated pit space. This includes anything that might protrude above the pit space highest point e.g. flags. Teams may be instructed by the chair of judges to rectify and infringements. Time taken to rectify outside of the outside of the set-up time limit will incur penalty points as per C 6.6.3.		
Only student team members C 6.6.5	-5	**ONLY** student team members are permitted to set-up their pit displays. There must be no supervising teacher / adult or other outside assistance, unless deemed by F1 in Schools to be a health and safety issue.		
Health & Safety C6.6.5	Up to -20	Health & Safety measures must be considered when working on all aspects of your Pit Display. A penalty of up to 20 points may be applied at the discretion of the Chair of Judges		
			Pit Display Build Assessment =	**/20**
			Completed by (initials):	
			Checkedby (initials):	

Notes:

*A team that runs over by 30 seconds would be rounded up to 5 minutes and therefore will incur a 5pt penalty.

Please note: These points are migrated onto the Enterprise Score Card.

5. Verbal Presentation Score Card	Team Name:	
	School Name:	

TECHNIQUE				
Visuals	Little use of aids.	Some aids used effectively	Highly professional aids effectively improve communication	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Team Contribution	Minimal team participation	Good contributions from most team members	Excellent team work with all members participating effectively	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Dynamic/Energy	Artificial and/or low energy	Speakers generally enthusiastic with lively delivery	Passionate with effective and appropriate levels of liveliness	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Engagement	Minimal engagement	Some audience connection at times	Audience fully engaged and excited throughout presentation	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
			Technique Total =	**/80**
COMPOSITION				
Concept Clarification	Several concepts lacked clarification	Clear and appropriate concept explanations	Everything presented was understood through excellent explanations	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Time / Presentation	Too fast or ran out of time. No structure presented	Good timing. Balanced topic depth and pace. A basic structure / outline provided and could be followed by audience	Ran on time or under. Excellent balance of depth for each topic. Clear presentation outline / overview. Excellent connections between topics and easy for audience to follow.	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
			Composition Total =	**/40**
SUBJECT MATTER				
Innovation	Little project innovation presented	Project innovations described and justified	Originality. Clever innovations with high positive project impact	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
Collaboration	Little collaboration discussed	Links with industry or higher education described	Collaborations justified with links to learning and project outcomes	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
F1 in Schools Learning Experiences	No real reflections discussed	Good explanation of some learning outcomes	A range of personal, life-long learning and career skills acquired and identified as project outcomes for a range of team members	
	1 2 3 4	5 6 7 8 9 10 11	12 13 14 15 16 17 18 19 20	
			Subject Matter Total =	**/60**
			Technique Total + Composition Total + Subject Total = Verbal Presentation Total =	**/180**

Notes:

Project Element Submission Checklist

CODE

Team Name:			
School Name:			
Project Element	**Checked by Team**	**Received by NSIDC**	**Comments: (Completed by NSIDC Officials only)**
1 x Car A (Green Dot)			Weight: g
1 x Car B (Red Dot)			Weight: g
Two (2) Design & Engineering Portfolio			
Orthographic drawing and 3D render included in design portfolio			
An electronic copy of all specified project data			

Sign-off by	**Name**	**Signature**
Team Manager:		
NSIDC Official:		

You will be required to submit all project elements as detailed in ARTICLE C2.9.
ALL ELEMENTS MUST BE SUBMITTED COMPLETE AND READY FOR JUDGING & RACING.

Revised point allocations

Points will be awarded to teams across five (5) categories with maximum possible scores as detailed in the following table.

Specification & Scrutineering Judging	
Specifications	110 points
Engineering Drawings	20 points
Rendering	20 points
Quality of Finish and Assembly	20 points
Design & Engineering Judging	
Design & Engineering	180 points
Enterprise Judging	
Enterprise	120 points
Pit Display	60 points
Verbal Presentation Judging	
Technique	80 points
Composition	40 points
Subject Matter	60 points
Racing	
Reaction Racing	100 points
TOTAL	**810 points**